

## CLAIM AMENDMENTS

1           1. (Currently amended) An apparatus for measuring the  
2 chromatic dispersion (CD) of an optical fiber, the apparatus  
3 comprising:

4           an optical source able to generate optical signals at  
5 variable wavelength;

6           a signal generator able to generate modulation signals;

7           a modulator able to generate modulated optical signals on  
8 the basis of said optical signals and of said modulation signals;

9           a coupler coupling device able to send said modulated  
10 optical signals to a first end of said fiber; wherein ~~said signal~~  
11 ~~generator comprises means~~

12           an impulse generator in the signal generator and able to  
13 generate impulsive electrical signals having variable amplitude,  
14 and having duration and periodicity determined according to the  
15 characteristics of said fiber, such that said modulated optical  
16 signals are shaped by pulses having variable amplitude ; ~~said fiber~~  
17 ~~comprises in correspondence with a second end~~

18           a reflecting element at a second end of the fiber able to  
19 reflect said modulated optical signals and to generate reflected  
20 optical signals having a reflected modulation modulated component;  
21 and ~~[[by]] comparator means is~~

22           a comparator associated to said first end of said fiber  
23 and ~~[[is]]~~ able to measure the phase difference between said  
24 modulation signals and said reflected modulation modulated  
25 component.

1           2. (Currently amended) Apparatus as claimed in claim 1  
2 ~~characterized in that wherein:~~

3           ~~said coupler comprises means~~ coupling device is further  
4 able to receive said reflected optical signals; and

5           ~~said comparison means~~ comparator comprises

6           an optical receiver connected to said ~~coupler~~  
7           coupling device and able to convert said  
8           reflected optical signals into electrical  
9           signals representative of said reflected  
10          modulation modulated component; and

11          a phase comparator connected to said signal  
12          generator and to said optical receiver and  
13          able to generate an electrical signal  
14          representative of said phase difference.

1           3. (Currently amended) Apparatus as claimed in claim 2  
2 further comprising

3           ~~a processor control means associated respectively to with~~  
4           said optical source and ~~[[to]]~~ with said signal generator and able  
5           selectively to control the wavelength of said optical signals and  
6           the characteristics of said modulation signals.

1           4. (Currently amended) Apparatus as claimed in claim 3  
2 wherein said ~~control means processor comprise computing means (18)~~  
3           is further able to calculate the chromatic dispersion ~~[[CD]]~~ of  
4           said optical ~~[[fibre (50)]]~~ fiber on the basis of the phase  
5           difference measured as the wavelength of said optical signal  
6           varies.

1           5. (Currently amended) A method for measuring the  
2 chromatic dispersion of an optical fiber the method comprising the  
3 steps of:

4           generating optical signals at variable wavelength;  
5           generating modulation signals shaped by impulse  
6 electrical signals having predetermined phase, variable amplitude,  
7 and having duration and periodicity determined according to the  
8 characteristics of said fiber;

9           modulating said optical signals with said modulation  
10 signals such that the optical signals modulated with said  
11 modulation signals are shaped by pulses having variable amplitude;

12           sending the modulated optical signals ~~modulated with said~~  
13 ~~modulation signals~~ to a first end of said fiber;

14           reflecting at a second end of said fiber said modulated  
15 optical signals in such a way as to obtain reflected optical  
16 signals having a reflected modulation modulated component;

17           measuring in correspondence with said first end the phase  
18 difference between said modulation signal and said reflected  
19 modulation modulated component.

1           6. (Currently amended) The method as claimed in claim 5  
2 characterized characterized by the additional step of

3           calculating the chromatic dispersion of said optical  
4 fiber on the basis of the phase difference measured as said  
5 wavelength of said optical signals varies.

1           7. (New) The method defined in claim 5 wherein the  
2     amplitude of said pulses is variable in sinusoidal fashion.

1           8. (New) The method defined in claim 5 wherein a duration  
2     of said pulses is no greater than twice a time of propagation of  
3     the pulses in said fiber.

1           9. (New) The method defined in claim 5 wherein a  
2     periodicity of said pulses is no less than four times a time of  
3     propagation of the pulses in said fiber.

1           10. (New) The apparatus defined in claim 1 wherein the  
2     amplitude of said pulses is variable in sinusoidal fashion.

1           11. (New) The apparatus defined in claim 1 wherein a  
2     duration of said pulses is no greater than twice a time of  
3     propagation of the pulses in said fiber.

1           12. (New) The apparatus defined in claim 1 wherein a  
2     periodicity of said pulses is no less than four times a time of  
3     propagation of the pulses in said fiber.